Earthquake: Devastation and Recovery
Bam, Iran

The Earthquake

A powerful earthquake struck southeastern Iran on December 26, 2003, killing over 40,000 people, injuring 16,000, leaving 70,000 homeless and destroying much of the city of Bam, including a 2,000 year-old fortress near the city. The United States Geological Survey National Earthquake information center reported a magnitude of 6.6 for the quake and the epicentre was the city of Bam. The old quarter and a 2,000-year-old citadel (severely damaged by the earthquake) were built primarily of mud brick. Local people told reporters that on the afternoon of the 25th of December there were some light tremors in the area but this would not be unusual for the region. At around 4am on Friday the 26th there was an earthquake, which shook houses. Then at 5.27am the second earthquake, that lasted12 seconds struck.

Photographer: Hadi Kamarehie
National Geoscience Database of Iran

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Geographically, Bam is located in South-eastern corner Kerman province. Maintaining its position in the middle of the Southern trade route, this small-fortified city on the outskirts of the vast Dasht-é-Lut desert is just 350km west of the modern day Pakistan and 450km north of the Persian Gulf. Eighty thousand people made their homes within Bam's boundaries, the date and citrus fruit industry accounted for about 60 percent of income in Bam and the surrounding villages in the desert of southeastern Iran.

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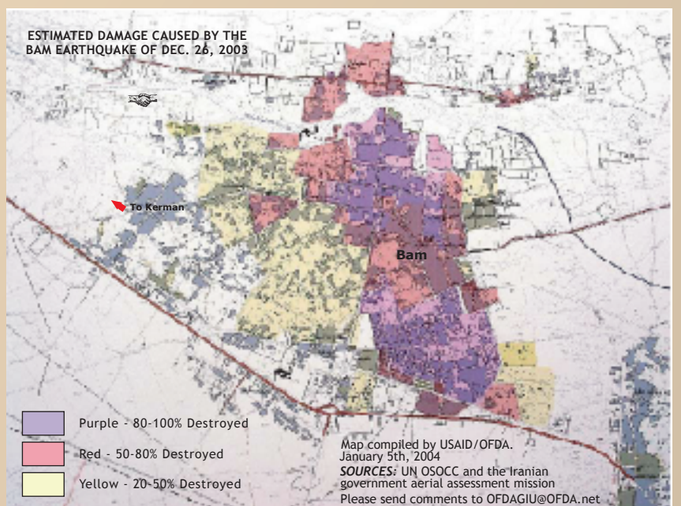
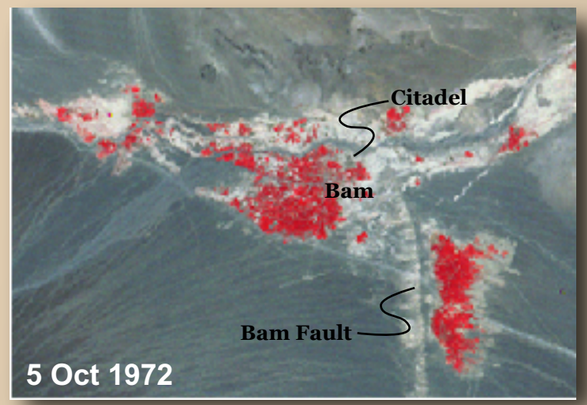
Clearly seen in this image is the 2,000-year-old citadel, considered the world's largest mud fortress. The citadel was a popular tourist attraction and is on the register of the U.N. Educational, Scientific and Cultural Organization and has been a World Heritage site.

Historical Significance

Bam was considered to be an extraordinary historical site. Many of the well-visited historical sites in the world, such as the Acropolis in Athens and the Coliseum in Rome, only give the archaeologist and tourist a limited slice of history. Bam, on the other hand, clearly displayed the imprints of over 2000 years of continuous history. Surrounded by inhospitable deserts and mountains, the Arg-é-Bam (The Ancient City of Bam) seemed to shine out amongst its inhospitable surroundings.



Landsat View of Agriculture in the Bam, Iran Region



Economical Significance: Date Palms

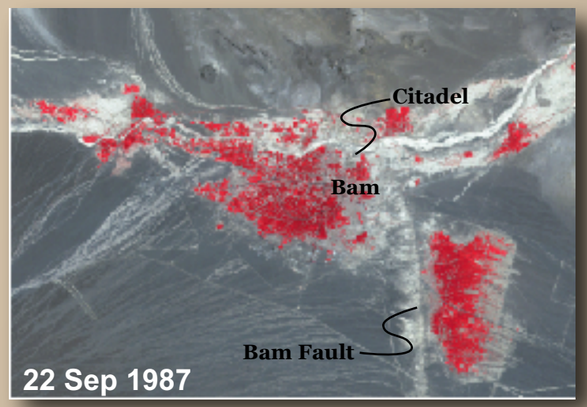
In a region famous for its scarcity of water, Bam thrived with extensive palm groves and citrus gardens. Benefiting from subterranean water reserves, surfacing through a number of mile long water canals, Bam was essentially an agricultural city famous for, and a major producer of, the very best date fruits in all of Iran.

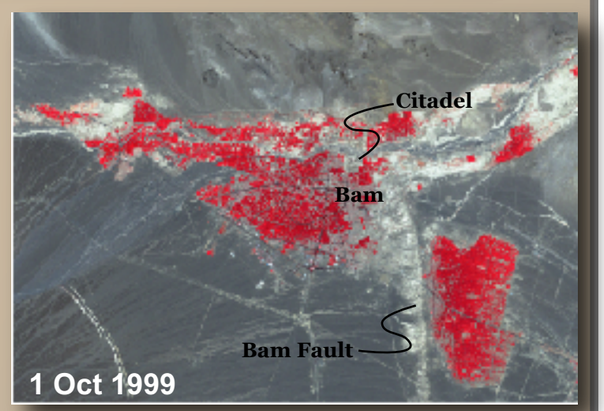
Shades of red in these satellite images reveal a significant increase in agricultural areas over the past 30 years. Damage to underground irrigation tunnels called Qanats, could threaten the survival of previously irrigated crops grown in this dry desert environment.

Concentration of sink holes due to collapse of Qanat tunnels and access well (South of Bam)

Engineering Geology and Geotechnical Aspects of Bam Earthquake
International Institute of Earthquake Engineering and Seismology

After the earthquake of December 26, 2003 that flattened the citadel and the mud-brick houses and destroyed 85 percent of the city's buildings, just about the only things left standing tall above the ruins of Bam were the mainstays of the local economy: date palms. The date harvests that produced thousands of tons of dates each year were left undamaged in plantation fields and house gardens, offering hope for an agricultural-based recovery. Irrigation repairs have begun and agriculturists are optimistic that this year's date harvest could be as large as last year's.





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